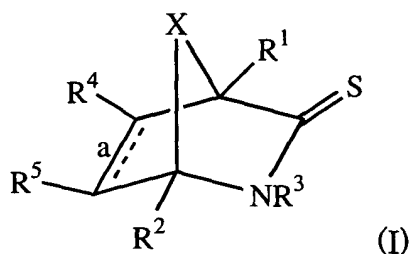


Claims

1. A composition comprising:

(a) from 0.1% to 20% of at least one bicyclic thioamide of formula I:

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wherein X is O, S, NR⁶ or CR⁷R⁸; R¹, R², R⁴, R⁵, R⁷ and R⁸ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R³ and R⁶ independently are

10 hydrogen, alkyl, alkenyl, aryl, aralkyl, alkanoyl or aroyl; and bond "a" is a single or double bond; and

(b) a lubricating oil.

2. The composition of claim 1 in which at least one of R¹, R², R³, R⁴, R⁵,

15 R⁶, R⁷ and R⁸ is aryl, aralkyl, C₄-C₂₂ alkyl or C₄-C₂₂ alkenyl.

3. The composition of claim 2 in which bond "a" is a double bond.

4. The composition of claim 3 in which R³ is C₆-C₂₂ alkyl, C₆-C₂₂

20 alkenyl, aryl or aralkyl.

5. The composition of claim 4 in which X is NR⁶.

6. The composition of claim 2 in which bond "a" is a single bond.

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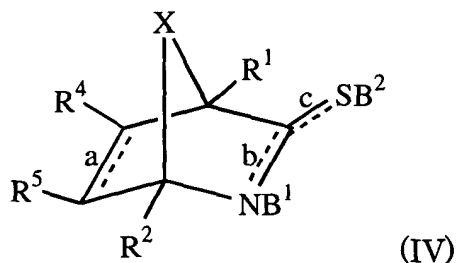
7. The composition of claim 6 in which X is NR⁶.

8. A composition comprising:

- (a) a reaction product of a compound of formula (I) with an imine; an unsaturated carboxylic acid or ester; an isocyanate or isothiocyanate; or an alkyl, alkenyl or aralkyl group bearing a leaving group; and
- (b) a lubricating oil.

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9. A compound of formula (IV)



- 10 wherein X is O, S, NR⁶ or CR⁷R⁸; R¹, R², R⁴, R⁵, R⁷ and R⁸ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R⁶ is B³, hydrogen, alkyl, alkenyl, aryl, aralkyl, alkanoyl or aroyl; bond "a" is a single or a double bond; bonds "b" and "c" are single or double bonds, provided that one of b and c is a single bond and the other is a double bond;

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B¹, B² and B³ independently are -CR¹²H-CR¹³H-COOR¹⁴, -CR¹⁰R¹¹NHR⁹, -C(O)NHR¹⁵, -C(S)NHR¹⁵ or R¹⁶; provided that at least one of B¹, B² and B³ is -CR¹²H-CR¹³H-COOR¹⁴, -CR¹⁰R¹¹NHR⁹, -C(O)NHR¹⁵, -C(S)NHR¹⁵ or R¹⁶; and provided that when one of B¹ and B² is -CR¹²H-CR¹³H-COOR¹⁴,

- 20 -CR¹⁰R¹¹NHR⁹, -C(O)NHR¹⁵, -C(S)NHR¹⁵ or R¹⁶, then the other of B¹ and B² is absent;

R¹⁰, R¹¹ and R¹⁴ independently are hydrogen, alkyl, alkenyl, aryl or aralkyl; R¹⁶ is alkyl, alkenyl or aralkyl; R¹² and R¹³ independently are hydrogen or C₁-C₄ alkyl; R⁹ and R¹⁵ independently are alkyl, alkenyl, aryl or aralkyl.

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10. The compound of claim 9 in which at least one of B¹, B² and B³ is

$\cdot\text{CR}^{12}\text{H}\cdot\text{CR}^{13}\text{H}\cdot\text{COOR}^{14}$, $\cdot\text{CR}^{10}\text{R}^{11}\text{NHR}^9$, $\cdot\text{C}(\text{O})\text{NHR}^{15}$ or $\cdot\text{C}(\text{S})\text{NHR}^{15}$.